

Neglected Infections of Poverty: Toxocariasis

[Announcer] This podcast is presented by the Centers for Disease Control and Prevention. CDC – safer, healthier people.

I'm Kelly Stimpert, a Health Communications Specialist here at the Centers for Disease Control and Prevention's Division of Parasitic Diseases and Malaria. Neglected infections of poverty are infectious diseases that disproportionately affect minorities, women, and other disadvantaged groups. Neglected infections of poverty include, but are not limited to, Chagas disease, congenital cytomegalovirus infection, cysticercosis, toxocariasis, toxoplasmosis, and trichomoniasis. Clinicians typically receive little training on these diseases, which means that many physicians may not understand them well.

Today, we'll discuss the clinical aspects of toxocariasis. Toxocariasis is a human disease caused by infection with the larval stages of the dog or cat roundworm. Humans become infected by ingesting either embryonated eggs in soil or food or encysted larvae in raw tissues from cow, sheep, or chicken. It's important to note that when an egg is initially shed it's not infectious. It can take one to two weeks at ambient temperatures for the larvae to develop and become infectious.

The highest prevalence is in the southern United States, and Non-Hispanic blacks are more likely to be infected than other groups. Risk factors for infection include poverty, low education levels, and dog ownership. Soil contamination is also common and areas of particular concern are sandboxes and places in yards where animals tend to defecate.

Most people are asymptomatic when infected with *Toxocara*. Symptomatic disease occurs when dead or dying larvae cause a reaction in the body. There are three clinical forms of the disease. One is called mild toxocariasis, or common toxocariasis. Children may present with fever, headache, behavioral and sleep disturbances, cough, anorexia, abdominal pain, hepatomegaly, nausea, and vomiting. Peripheral eosinophilia may also be present. In adults, mild toxocariasis can be associated with chronic dyspnea, weakness, rash, pruritus, and abdominal pain. Eosinophilia is much more likely to be present in adults. Mild toxocariasis is often undiagnosed because the patient is not sick enough to seek medical attention.

The two more severe forms of the disease are visceral toxocariasis and ocular toxocariasis. Visceral toxocariasis typically occurs in children, but can infect persons of any age. Signs and symptoms can include fever, lower respiratory symptoms, hepatomegaly, abdominal pain, anorexia, or skin reaction. Rarely, the migrating larvae can cause eosinophilic meningitis or encephalitis, myelitis, optic neuritis, radiculitis, or cranial nerve palsy, and in few cases, myocarditis due to migration to the heart tissue or nephrotic syndrome due to migration to the kidney and arthritis. In lab findings, there is almost always a marked peripheral eosinophilia and often, anemia and a hypergammaglobulinemia.

Ocular toxocariasis typically occurs in 5 to 10-year-olds. Usually only one eye is affected, and manifestations can include strabismus, unilateral decreased vision, and leukorrhea. Eye exam

may show peripheral posterior polar retinal granuloma and an ophthalmitis, with a vitreous band on ultrasound.

Diagnosis of toxocariasis is made using an Enzyme-Linked Immuno-Sorbent Assay, or ELISA test. Treatment of toxocariasis varies depending on the type of infection. Mild toxocariasis often does not need to be treated. In visceral toxocariasis, treatment is usually required and includes five days of albendazole. Systemic corticosteroids may be added for allergic symptoms, such as skin rash, pruritis, or asthma-like symptoms. Ocular toxocariasis requires a two to four week course of treatment with albendazole. The key to treating ocular toxocariasis is aggressive anti-inflammatory treatment with corticosteroids, because much of the decreased vision is due to the inflammatory response to dead or dying larvae in the eye. Surgery may be needed in order to remove the larva.

Prevention of toxocariasis is important in both animals and humans. Interventions targeting dogs and cats include regular deworming during annual veterinary visits. People are encouraged to clean up after their pets, to properly dispose of waste, and to clean pet play areas weekly. It takes more than a week for eggs to embryonate and become infectious, so cleaning pet areas regularly will help prevent infection. Human infection can be prevented by encouraging children not to play in areas where animals defecate, covering sandboxes when not in use to prevent pet access, preventing geophagia when possible, and using good hygiene practices, such as washing hands with soap and water after playing outside or with pets.

For more information on toxocariasis, please visit cdc.gov/parasites/toxocariasis and for more information on neglected infections of poverty and additional resources for healthcare providers, visit the COCA Website at emergency.cdc.gov/coca. Thank you.

[Announcer] For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO, 24/7.